

## 03—310 Checking, replacement and tightening of big-end clamp bolts

### Dimensions of big-end clamp bolts

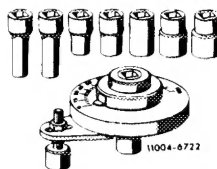
Part No.	Thread dia.	Waisted shank dia. c as new (illustration, job No. 1)	Min. waisted shank dia c
615 038 02 71	M 10 x 1	8.4—0.1	7.2
Insertion pressure for big-end clamp bolt			45000 N (4500 kp)

### Torque settings for big-end clamp nuts

Initial torque	40—50 Nm (4—5 kpm)
Final torquing angle	90—100°

### Special tool

Torquing angle set

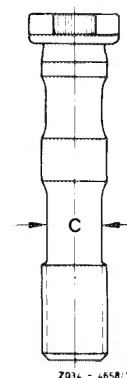


### Shop-made tool

Steel plate	see illustration, job No. 3
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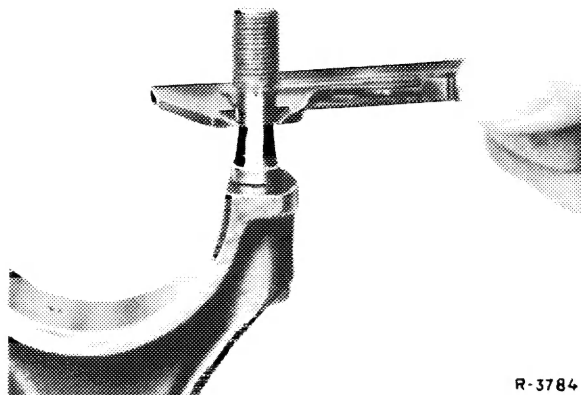
### Checking

1 Prior to putting back, check for minimum waisted shank diameter.



**Note:** Replace big-end clamp bolt if shank diameter has reached or dropped below min. 7.2 mm.

Big-end clamp bolts are not to be removed unless they are going to be replaced.



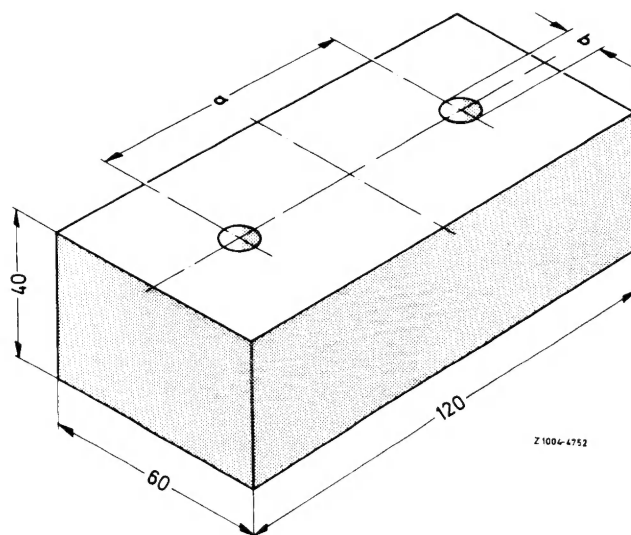
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## Replacement

2 Remove big-end clamp bolts.

3 Force new clamp bolts into connecting rod, applying about 45,000 N (4500 kp); or drive home using hammer and drift.

Prior to driving or pressing clamp bolts into position, remember to place connecting rod on a ground steel plate.



Hole spacing  $a = 67 \text{ mm}$   
Bore  $b = 11 \text{ mm}$

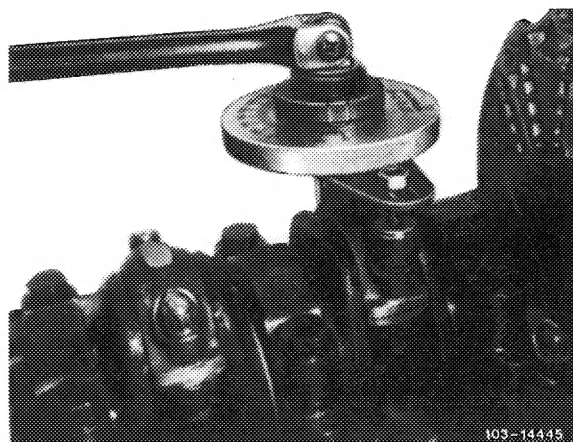
## Tightening

4 Oil nuts and thread contact surfaces.

5 Pretorque clamp nuts to 40–50 Nm (4–5 kpm) and then tighten by 90–100°.

### Caution:

Clamp bolts which have been **hammered** home, must be pretorqued the **first time** to 50–60 Nm (5–6 kpm) and then tightened by 90–100°.



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This rule must be observed under all circumstances because the clamp nuts may otherwise come loose.

**Note:** Should no torquing angle set be available, the clamp nuts may be tightened **in one go** by 90—100° using a normal socket and tommy bar. Be sure to estimate this angle as exactly as possible. **To eliminate torquing angle errors**, be sure **not to use a torque wrench** for torquing nuts and bolts by degrees.